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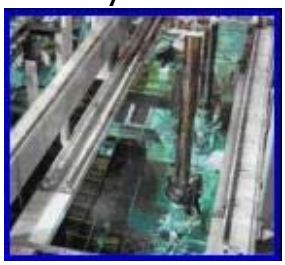
K East Basins - Fuel Transfer System Operations

Canister Storage Building – Multi-Canister Overpack Welding

Sludge Retrieval and Disposition - Test loading large diameter container into casks at K Basins

K West Basins

Fuel Retrieval System



Canister Cleaner Operations

Loading Cask on Trailer at K West

Cold Vacuum Drying Facility – Multi-Canister Overpack Processing

OVERVIEW

This section addresses Project Baseline Summary (PBS) RL-0012, *Spent Nuclear Fuel (SNF) Stabilization and Disposition.*

NOTE: Unless otherwise noted, all information contained herein is as of the end of December 2003.

NOTABLE ACCOMPLISHMENTS

Fuel Movement Activities: On January 13, 2004, the SNF project completed Tri-Party Agreement (TPA) milestone M-34-28 (1,619 metric tons of heavy metal [MTHM]) with shipment of the 298th multi-canister overpack (MCO). A total of 13 MCOs containing 77.47 MTHM were shipped from the K-West Basin to the Cold Vacuum Drying Facility during December, which was the highest production month since May 2003. As of January 18, 2004, a cumulative total of 300 MCOs containing an estimated 1,634.82 MTHM have been shipped.

Sludge Disposition Alternatives: Based on feedback from presentations delivered to RL on November 18, 2003, and to DOE-HQ's Environmental Management-3 on December 5, 2003, FH is working towards the accelerated disposition of the K-Basin sludge to the Central Waste Complex for shipment to the Waste Isolation Pilot Plant (WIPP) rather than retrieving the sludge and placing it in long-term, monitored storage in T-Plant. The revised sludge plan calls for the near-term retrieval of sludge from the K-East North Load Out Pit (NLOP) and transportation to the 325 Radiochemical Processing Laboratory for immobilization and packaging for disposal at the WIPP. It also provides for the consolidation and containerizing of the balance of K-East sludge and transfer to K-West Basin to stage for processing, and processing K-East and K-West basin sludge streams into immobilized waste packaging suitable for final disposition at WIPP. The new sludge remedy eliminates the risks and costs of long-term storage of the K Basins sludge at T-Plant, and accelerates sludge's disposal to the WIPP by over 10 years.

During December, the Sludge and Water System (SWS) and Active Inert Ventilation System completed testing and were declared operational. These systems, along with the Sludge Transportation System, will be utilized to retrieve and transport the NLOP sludge to the 325 Radiochemical Processing Laboratory for processing. On December 15, 2003, a quantity of sludge from the K-East NLOP was retrieved and shipped to the 325 Radiochemical Processing Laboratory for characterization and treatment studies by the Pacific Northwest National Laboratory. Preliminary results from this testing show that treatment of the NLOP to contact-handled WIPP acceptance criteria will be achieved. The final test report is scheduled to be issued by January 19, 2004.

A baseline change request outlining the proposed alternative sludge disposition pathway is being prepared and will be submitted to RL in January 2004 for review and approval.

Fuel Transfer System (FTS): The project completed 29 FTS shipments (290 canisters) during December. For the first time ever, three FTS shipments were completed in one day (January 11, 2003). As of January 18, 2004, a cumulative total of 231 FTS shipments (2,308 canisters) have been completed.

MCO Welding at the Canister Storage Building: The project welded and "N" stamped 15 MCOs during December for a cumulative total of 122. As of January 18, 2003, a cumulative total of 127 MCOs were welded and N stamped, which is nine MCOs ahead of the baseline schedule.

NOTABLE ACCOMPLISHMENTS (CONTINUED)

Deactivation: The radiological phase of the underwater hydrolasing demonstration was performed on December 17, 2003, at the 105-KE Basin West cantilevered wall. The demonstration integrated technologies of underwater waste recovery, laser measurement to determine concrete cutting depths, an underwater hydrolasing head to scarify the underwater concrete surface, and a robotic arm that deploys the hydrolasing blast head. The demonstration successfully removed contaminated concrete from a 100 square-foot test area. Initial readings prior to hydrolasing were nominally 3.5 radiation exposure per man unit (REM). The hydrolasing removed nominally one-half inch of concrete from the surface area and collected the debris stream in an underwater spoils collection system. The post-hydrolasing radiological readings were approximately 200 mrem. The hydrolased concrete is being monitored to determine the extent of potential Cesium re-migration. Samples of the pulverized concrete were obtained to perform waste stream characterization at the 222-S Laboratory. Following the radiological testing, a post-job/lessons-learned session was held with FH representatives and the contractor. FH personnel will be working on issuing a contract in preparation to deploy a full-scale hydrolasing for the 105-KE Basin. In addition, EPA approved the Sampling and Analysis Plan to allow disposal of the hydrolased concrete wastes to the Environmental Restoration Disposal Facility.

ISSUES

Sludge Retrieval and Disposition: The TPA milestone (M-34-08) to begin K East sludge movement by December 31, 2002, was missed. FH and RL have conducted several briefings to the Environmental Protection Agency on the proposed sludge remedy. Additional discussions, including a new set of TPA milestones set to the new accelerated sludge disposal schedule (if necessary), will occur in the future.

Fuel Production: Removal of all K Basin fuel is based upon improved reliability of FTS equipment. As of January 18, 2003, the project is approximately 30 shipments behind the production schedule of April 2004. During the month of December, FTS availability was in excess of 90 percent. The following actions are underway to continue to improve availability:

- Monitoring system performance using shock-pulse monitoring technology;
- Developing a pre-approved maintenance package for traveling-nut replacement;
- Finalizing pre-approved recovery plans for upset conditions; and
- Stocking spares with critical parts focusing on the jack-screw assembly.

FY 2004 FH FUNDS VS. FORECAST ($000)

	FY 2004 Anticipated Funding w/Carryover	FY 2004 Fiscal Year Spend Forecast	Variance
RL-0012 SNF Stabilization & Disposition	$ 176,352	$ 173,873	$ 2,479

Funding includes moving FFTF un-irradiated fuel from the Plutonium Finishing Plant (PFP) to the Canister Storage Building. It has now been determined that the FFTF un-irradiated fuel will be stored at PFP and shipped directly from PFP to the Savannah River Plant. The funds associated with FFTF fuel movement will be reallocated to other Hanford priorities.

FY 2004 SCHEDULE/COST PERFORMANCE ($000)

	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance $	Schedule Variance %	Cost Variance $	Cost Variance %	Budget At Completion
SNF Stabilization & Disposition	42,168	18,063	41,864	-24,104	-57%	-23,800	-132%	162,394

NOTE: Numbers are rounded to the nearest $K; includes closure services allocation.

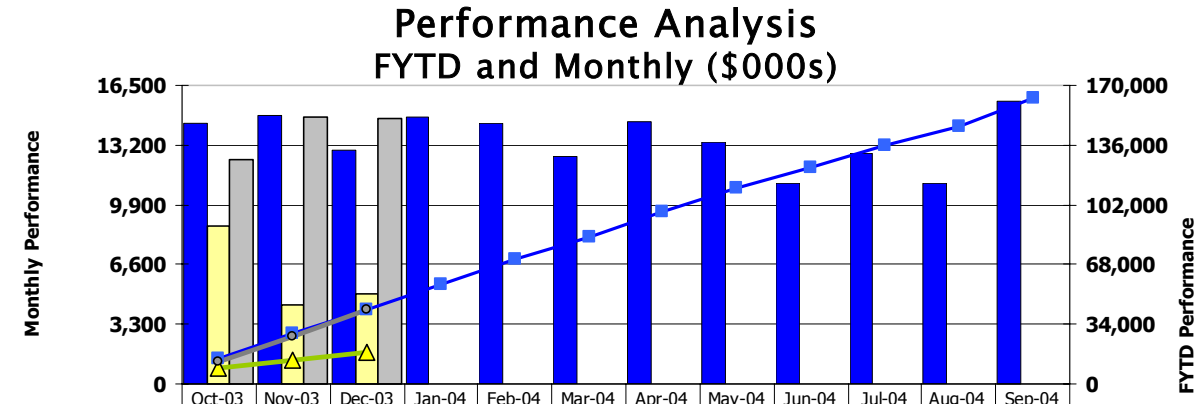
Schedule Variance Analysis (-$24,104K/-57%): The unfavorable schedule variance is due to:

- Fuel movement from FTS and MCO shipments are behind schedule (-$10,925K).
- Welding continues ahead of schedule (+$78K).
- Performing only that planning work required for both the baseline approach and the revised Grout and Remove approach. In accordance with guidance received from RL, actual basin and ancillary facility deactivation scope is not being performed pending approval of the baseline change request to implement the Grout and Remove approach, and to defer the ancillary facility deactivation to FY 2007 (-$4,522K).
- MCO fabrication vendor problem with a subcontractor is causing late delivery (-$290K).
- Halting the baseline approach to sludge retrieval pending a final decision regarding implementation of the accelerated sludge disposal alternative in accordance with informal discussions between FH and RL (-$1,200K).
- The balance of the schedule variance is attributed to support activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment, deactivation, and sludge retrieval schedules for earned-value purposes.

Cost Variance Analysis (-$23,800K/-132%): The unfavorable cost variance is due to the following:

- Cost continues to be incurred to maintain qualified project staff while fuel shipments lag (-$9,626K).
- K-East SWS continues design finalization towards Operational Readiness Review for sludge retrieval (-$4,436K).
- The balance of the cost variance is attributed to support activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment schedules, deactivation, and sludge retrieval schedules for earned-value purposes.
- The cost variance will slowly self-correct as the fuel, sludge, and deactivation progress is earned; the expected variance upon completion of fuel is expected to be about $8 million, which is directly attributable to the additional three months of management, operations, maintenance, and engineering staff to support completion of the fuel movement.

FY 2004 SCHEDULE/COST PERFORMANCE (CONTINUED)



	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04
Monthly BCWS	14,411	14,822	12,935	14,739	14,447	12,576	14,525	13,379	11,116	12,720	11,109	15,615
Monthly BCWP	8,747	4,354	4,962									
Monthly ACWP	12,417	14,751	14,696									
FYTD BCWS	14,411	29,233	42,168	56,907	71,354	83,929	98,455	111,834	122,949	135,670	146,778	162,394
FYTD BCWP	8,747	13,101	18,063									
FYTD ACWP	12,417	27,168	41,864									

Milestone Achievement

Number	Milestone Title	Type (TPA/ DNFSB/PI)	Due Date	Actual Date	Forecast Date	Status/ Comments
M-34-29 (S15-02-001)	Complete K East Basin and K-West Basin facility modifications for Alternate Fuel Transfer System casks transportation system	TPA	3/31/02	9/12/02		Complete
M-34-12-T01 (S15-02-001)	Complete construction of SWS (Construction Completion Document Section IIA)	TPA	09/30/02	3/4/03		Complete
M-34-17 (S00-02-901)	Initiate K East to K-West fuel transfer	TPA/ Performance Incentive (PI)	11/30/02	11/25/02		Complete
M-34-18A (S03-03-068)	Complete removal of 957 MTHM of SNF from the K-West Basin	TPA/DNFSB/PI	12/31/02	1/7/03		Complete
M-34-08 (S04-02-205)	Initiate full scale K East Basin sludge removal	TPA/DNFSB/PI	12/31/02		3/15/04	Missed

MILESTONE ACHIEVEMENT (CONTINUED)

Number	Milestone Title	Type (TPA/ DNFSB/PI)	Due Date	Actual Date	Forecast Date	Status/ Comments
M-34-27-T01 (S03-03-069)	Complete removal of 1,252 MTHM of SNF from K-West Basin	TPA	5/31/03	5/28/03		Completed 5/28/03, 3 days ahead of schedule
M-34-28 (S03-03-070)	Complete removal of 1,619 MTHM from the K-West Basin	TPA	12/31/03	1/13/04		Complete
M-34-25-T01 (S03-04-001)	Complete transfer of K East Basin SNF to K-West Basin	TPA/PI	11/1/03		4/04	Missed. Working to complete 4/2004.
M-34-18B (S00-00-902)	Complete removal of all K Basin SNF	TPA/DNFSB/PI	2/28/04		6/04	Working to complete 6/2004.
S04-00-205, *CD4*	Complete ORR sludge transfer from K Basins		12/31/02		3/15/04	Missed
M-34-10 (S04-01-215)	Complete sludge removal from K Basins	TPA/DNFSB/PI	8/31/04		8/31/04	Scope and schedule for completing interim milestone subject to change based on revised sludge remedy involving treatment and packaging for WIPP disposal.
M-34-23 (S10-99-953)	Start K East water removal	TPA	9/30/04		9/30/04	See note below
S07-04-005	Consolidate spent fuel in the 200 Area	PI	9/30/04		9/30/04	On schedule
M-34-09-T01 (S04-05-516)	Complete K Basins rack and canister removal	TPA	1/31/05		1/31/05	See note below
M-34-24 (S10-99-954)	Complete K East Basin Water removal	TPA	6/30/05		9/30/05	See note below
M-34-22 (S10-99-952)	Complete K-West Basin water removal	TPA	9/30/05		8/31/06	See note below
M-34-21-T01 (S10-99-951)	Initiate full-scale K-West Basin water removal	TPA	2/1/05		10/31/05	See note below
S06-06-005	Transfer of K Basins to the River Corridor Contractor	PI	10/30/05		10/30/05	On schedule
M-34-00A (S10-99-955)	Complete removal of K Basin fuel/sludge/debris/water from K Basins	TPA (Major)	7/31/07		7/31/07	See note below

NOTE: Milestone subject to possible change based on accelerated K-Basin sludge disposal and basin deactivation approach.